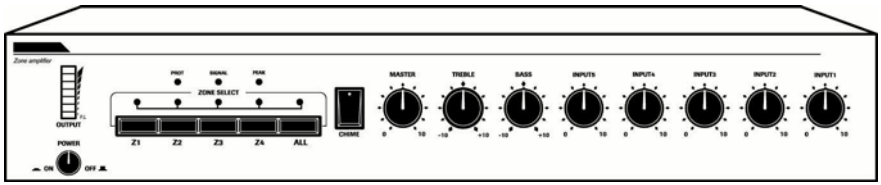
INSTRUCTION MANUAL

PA Zone Mixer/Amplifier
AMP 120Z4 / 180Z4 / 240Z4



PROEL

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1. IMPORTANT SAFETY INSTRUCTIONS

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CAUTION: To reduce the risk of electric shock do not remove cover (or back panel). No user serviceable parts inside. Refer servicing to qualified personnel only.

WARNING: To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.

This symbol is intended to alert the user of the presence of uninsulated dangerous voltage within the product enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

This symbol is intended to alert the user of the presence of important operating and maintenance (servicing) instruction in the literature accompanying the appliance. Please carefully read the owner's manual.

INSTRUCTIONS:

All safety and operating instructions should be read before the product is operated.

Retain these instructions:
All safety and operating instructions should be retained for future reference.
This owner's manual should be considered as a part of the product and it must accompany it every time, and delivered to the new user when this product is sold. In this way the new owner will be aware of all the installations, operating and safety instructions.

Heed all warnings:
All warnings on the product and in owner's manual should be adhered to**.**
Heed all warnings.

Follow all instructions:
All operating and user's instructions must be followed.

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Sentences preceded by ⚠ symbol contain important safety instruction. Please read it carefully.

DETAILED SAFETY INSTRUCTIONS.

Water and moisture:

This apparatus should not be used near water (i.e. bathtub, kitchen sink, swimming pools, etc.)

Ventilation:

This apparatus should be placed in a position that doesn't interfere with correct ventilation. This unit, for example, should not be placed on a bed, sofa cover o similar surfaces that could cover ventilation openings, or placed in a built-in installation, such a bookcase or a cabinet that could block air flow trough ventilation openings.

Heat:

This apparatus should be placed away from heat sources, like radiators, heat registers, stoves or other products (including amplifiers) that produce heat.

Power sources:

- This apparatus should be connected only to power source type specified in this owner's manual or on the unit.
- If the supplied AC power cable plug is different from wall socket, please contact an electrician to change the AC power plug.

Grounding or Polarization:

- All precautions must be observed in order to avoid grounding or polarization defeating.
- Unit metal parts are grounded through the AC power cord.
- If the AC power outlet doesn't have grounding, consult an electrician for outlet grounding.

Power cord protection:

The power cord should be routed in a way it will not be walked on or pinched by items placed upon or against it, paying particular attention to cords at plugs, convenience receptacles and wall outlet.

Cleaning:

- You can clean the unit with a compressed air flow or a wet cloth.
- Don't clean the unit using solvents like trichloroethylene, thinners, alcohol, or other fluids with very strong volatility and flammability.

Non use periods:

The unit AC power cord should be unplugged from the outlet if it's unused for a long period.

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Objects or liquid entry inside the unit:

Be careful that no objects fall or liquid is spilled inside the unit through ventilation openings.

Safe power line use:

- Keep firmly the plug and the wall outlet while disconnecting the unit from AC power.
- If the unit will not be used for a long period of time, please unplug the power cord from AC power outlet.
- To avoid unit power cord damaging, please don't strain the AC power cable and don't bundle it.
- In order to avoid unit power cord damaging, please be sure that the power cord is not walked on or pinched by heavy objects.

Unit relocation:

Before any unit relocation please control the unit is turned off. The power cord must be unplugged by wall outlet, as well as all the connections wires should be disconnected.

Don't open this unit:

Don't attempt to open or repair this unit by yourself. For any problem solution not described in this owner's manual, please refer to qualified personnel only or consult us or your National Distributor. Any improper operation could result in fire or electric shock.

Damages requiring services:

- Don't attempt to do operations not described in this user's manual.
- In the following cases please refer to an authorized maintenance center or skilled personnel:
  - When the unit works improperly or it doesn't work at all.
  - If power cord or plug are damaged.
  - If liquid has spilled, or objects have fallen into the unit.
  - The unit has been exposed to rain.
  - The unit doesn't operate normally o it exhibits a marked change in performance.
  - If the product has dropped or it has been damaged in any way.

Maintenance:

The user shouldn't attempt maintenance operation not described in this user's manual. Every maintenance operation should be done by qualified personnel only.

IMPORTANT SAFETY INSTRUCTIONS:

- Install this unit following owner's manual instructions.
- Don't install, connect or disconnect power supply when the unit is powered, otherwise there's an high risk of electric shock.
- Don't open the unit, there are no user serviceable parts inside.
- If you detect a particular smell from the unit, please immediately turn it off and disconnect the AC power cord.
- Don't block the unit ventilation openings.
- Avoid using this unit in overload for a long period.
- Don't force commands (switches, controls, etc.)

- To obtain good speakers wire contacts, please tighten the screw terminals firmly.
- ⚠ For safety reason, don't defeat the grounding connection. Grounding is useful for user safety.
- Use only connectors and accessories suggested by the manufacturer. .
- This unit should be placed in a rack (see INSTALLATION) and kept far from:
  - Wet places
  - Direct exposure to heat sources (like sun light)
  - Non properly ventilated places
- Disconnect the power cord during storms or when the unit is not used.

- ⚠ In order to prevent fire and electric shock risks, it's necessary to keep the unit far from sprinkling and drops. Please don't put cups, vases or other object containing liquids over the unit. In case of interferences from source signal, THD value will raise over 10%. Don't place this unit in a bookshelf o in other places with small room.
- PROEL S.P.A. is not responsible for any damage that occurs due to a wrong unit installation.

Thank you for choosing one of Proel products, and for your confidence towards our brand, synonymous of professionalism, accuracy, high quality and reliability. All our products are CE approved and designed for continuous use in professional installation systems.

2. Description

These units have been specifically designed for paging, music, and sound reinforcement applications in P.A. systems.

FEATURES

- Impedance constant outputs (4, 8, 16 Ω) and constant voltage outputs (25, 70, 100 V).
- Four combo (XLR – ¼" jack) inputs
- PRE-OUT output
- MAIN-IN input
- RCA input
- LED level meter
- Five zone selection switches
- Monitor output
- Vocal activating priority input
- Contact activating priority input
- Signal peak LED
- Signal present LED

- Protection circuit LED
- Telephone-line signal input
- Bass and Treble EQ controls
- Output volume control
- Five independent level controls for input signals

3. FRONT PANEL DESCRIPTION

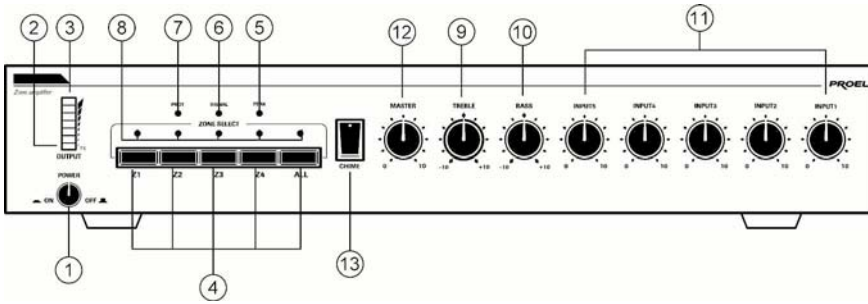

fig. 1

1) POWER - Power switch.
2) P.I. - Power LED. This LED is lit when the power switch is on.
3) LED volume meter.
4) Zone selection switches.
5) PEAK - Signal peak LED
6) SIGNAL - Signal present LED
7) PROT - Protection circuit status LED
8) ZONE SELECT - Active zone LED indicator
9) TREBLE - High frequencies control
10) BASS - Low frequencies control
11) Input signal level controls
12) MASTER – Master level control
13) CHIME – Chime activating switch

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4. REAR PANEL DESCRIPTION

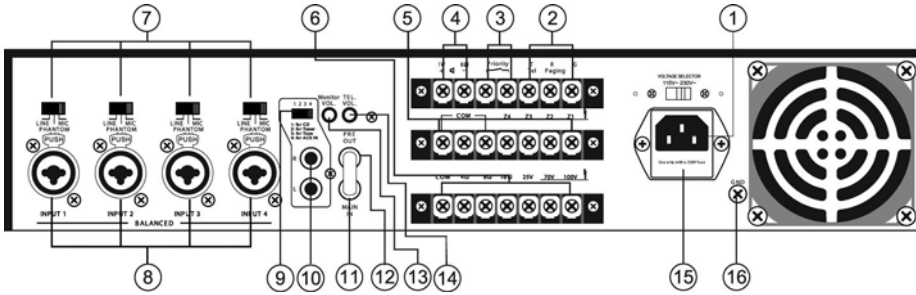

fig. 2

1) IEC AC power socket.
2) Telephone - paging input.
3) Priority function activation terminals.
4) Monitor output terminals.
5) Zone 1, 2, 3 and 4 (100V outputs) output terminals.
6) Speakers outputs for constant impedance/constant voltage connection.
7) INPUT 1-2-3-4 sensitivity selectors.
8) INPUT 1-2-3-4 connectors.
9) AUX IN sensitivity selector.
10) AUX IN inputs.
11) MAIN IN input.
12) PRE-OUT output.
13) Monitor volume trimmer control.
14) Telephone - paging volume trimmer.
15) Fuse-holder.
16) Vite GND
17) Selettore della tensione d'alimentazione

5. Installation

1. Input connections yellow green red

   - INPUT1, INPUT2, INPUT3, and INPUT4 are balanced/unbalanced, useful for low impedance (30-600Ω) dynamic microphones, or 24V phantom condenser microphones, or audio sources with line level output (i.e. AM/FM tuner, cassette deck, CD player, etc.). The connectors are 3-pin "XLR".

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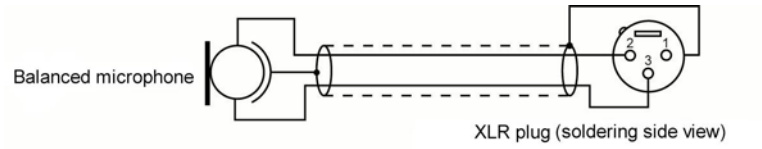
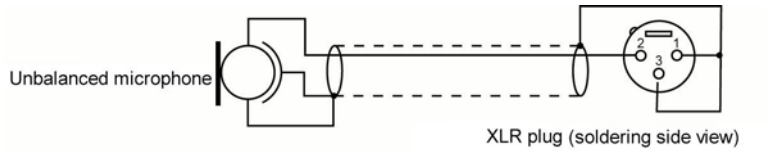
To choose the source type to be connected, please use selectors (**fig. 2 ref. 7**)**: LINE position for AM/FM tuners, CD players etc., MIC position for dynamic microphones and PHANTOM position for condenser microphones**. INPUT1 is provided of VOX function. When this input receives a signal, this signal has priority over all the other inputs; in this way only INPUT 1 audio signal is amplified.

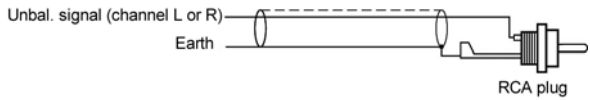
⚠ Attention

- Never connect unbalanced microphones when PHANTOM power is active, this power could be damaged.
- Turn off PHANTOM power before connecting or disconnecting the microphones connectors.
- Be sure that PHANTOM power is not active when you use microphones that don't need external power. Phantom power applied to XLR pin 2 and 3 could damage the microphones.





- AUX INPUT (INPUT 5).
  R (right) and L (left) sockets allow to input right and left channels using RCA connectors. It's possible to use this input for an external audio source (**fig. 2 ref.10**).



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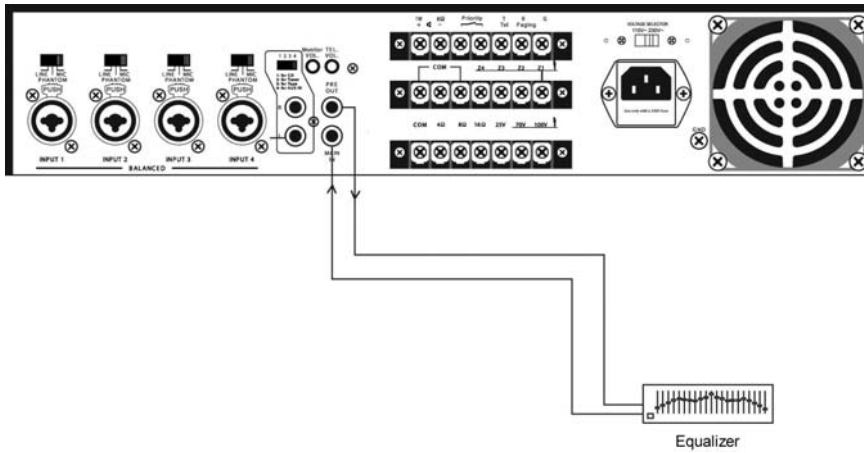
- MAIN IN and PRE OUT.
  MAIN IN input is connected to PRE OUT output by a jumper. It's possible to obtain a better performance of amplified sound inserting an external unit (i.e. equalizer, processor etc.). Please see the following picture for proper wiring.



- IEC AC power connection.
  To connect this unit to AC power outlet, please use the supplied AC linecord. (**fig. 2 ref. 1**).

⚠ **Attention**

Before connecting the unit to AC power, please control that the power selector (**fig.2 rif.17**) matches your local AC power value.

- TEL.PAGING input

  This input allows you to connect a telephone signal (600Ω) with priority over all the other signals **(fig. 2 ref. 2).**
  Signal volume may be set using the TEL.VOL. trimmer located on unit rear panel **(fig. 2 ref. 14).**

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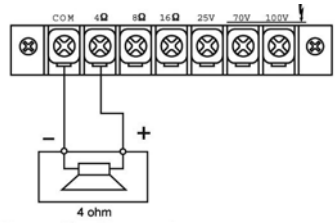
2. Output connections

⚠ Attention
To prevent the risk of electric shock, never touch amplifier outputs when the amplifier is turned on.

- Speakers connections.
  To access to speaker connection terminals remove the protection cover unscrewing the correspondent screws (**fig.2 ref. 5, ref. 6**).
  This amplifier may be used both with constant impedance speakers (4, 8, and 16 Ω) and with constant voltage speakers (25V, 70, and 100V). Make proper connections applying following instructions.

Constant impedance line
To use this amplifier with a constant impedance line (4Ω, 8 Ω, and 16 Ω), please connect the COM terminal to the negative post of your speaker and connect the proper impedance terminal to the positive post.

- To obtain the best performances, total speakers impedance connected to the line, should be equal to the amplifier output impedance.
- The speakers power sum should not be lower than amplifier output power.
- We suggest you don't use long cables. Anyhow, for longer distances application use a thicker cable.



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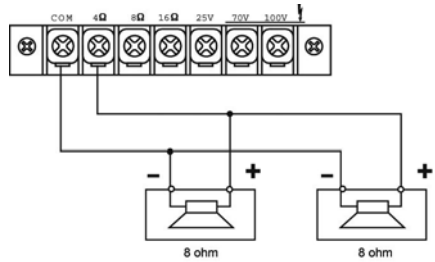
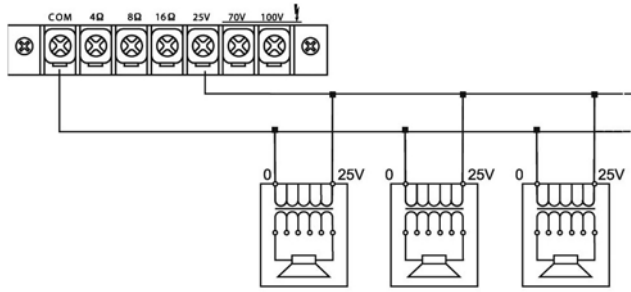
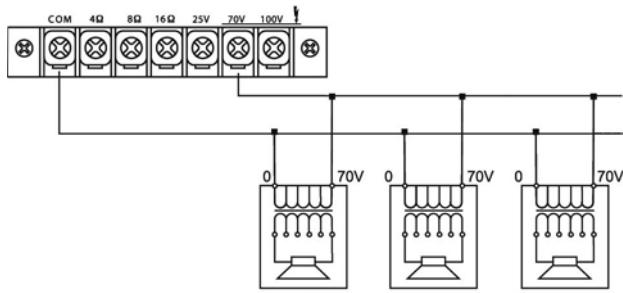
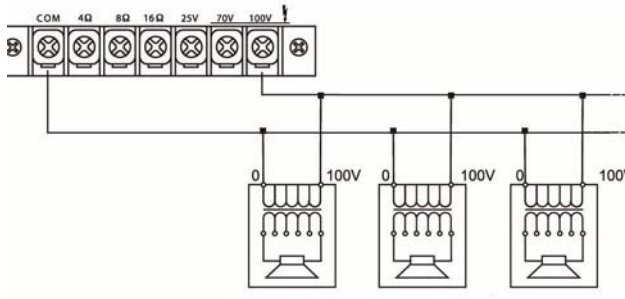


Constant voltage line

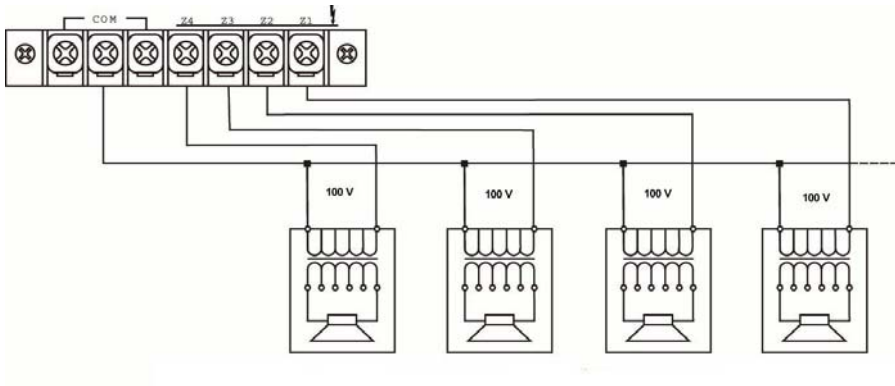
If you're using a constant voltage line, connect either the 70, or 100V to the "+" side of speaker system, and connect COM to "-" side of the speaker (**fig.2 rif.6**).







- For discrete line installation (zone system), each zone is independent from the other, connect speakers terminals to COM and to the desired zone number (**fig. 2 ref. 5**).
- If you're using a zone selector, you won't be able to use constant impedance speakers, since the line is set at 100 V constant voltage.
- Speakers should have a transformer of the same voltage developed by the amplifier.
- The speakers power sum should not exceed the amplifier maximum output power.



- MONITOR output connection
  This output allows you to connect a speaker (monitor), driven from the unit internal 1W amplifier, reproducing AUX IN signals.

  – Connection is obtained using rear panel terminals (**fig. 2 ref. 4**).
  – Output signal is set by AUX IN volume control, or by rear panel Monitor vol. trimmer (**fig. 2 ref. 13**).

3. GND terminal (unit grounding).

   This terminal allows hardware unit grounding if power socket is not "grounding" provided (**fig. 2 ref. 16**).

   ⚠ **Attention**
   Grounding connection should be done by qualified personnel only.

4. COM terminal

   Common output terminal, see step 2 (constant voltage output line connections).

5. PRIORITY function

   When PRIORITY and COM terminal (**fig. 2 ref. 3**) are in short-circuit, AUX INPUT is automatically lowered, leaving priority to INPUT2 INPUT3 and INPUT4 signals.

6. VOX function sensitivity

   It's possible to modify the signal level that sets the activation of VOX function using the "F" trimmer at the bottom of the unit.
   Using a screwdriver, please rotate clockwise the trimmer to boost activating sensitivity, or counter clockwise to cut activating sensitivity.

7. CHIME switch

The unit has a chime built in generator, that can be activated by the front panel switch (**fig. 1 ref. 13**), to be used for paging beginning or end.
When chime is activated it has priority over all the other signals and its volume is set by INPUT1 and MASTER controls.

6. Operations

a. To turn the unit on press the POWER switch.
b. To turn the unit off press the POWER switch again.
c. BASS control modifies the signal lower frequencies output. Set this control level by personal taste and ambient acoustic character.
d. TREBLE control modifies the signal higher frequencies output. Set this control level by personal taste and ambient acoustic character.
e. INPUT 1-2-3-4 and AUX IN (INPUT 5) inputs have independent volume controls. Set these control level by personal taste to decide for each audio source its own intensity.
f. Turning clockwise the MASTER volume control, the playback level will raise, turning it counter clockwise it will be lower. To get the best output level the master volume should be set between an output level between –20 dB and 0 dB, as shown by 5 lower LEDs **(fig. 1 ref. 3)**. Make sure the two higher LEDs (+3dB and +6dB) are not lit. These LEDs will indicate that signal is distorted and that MASTER volume should be decreased.
g. To select the area (ZONE) where sound diffusion is desired, it's necessary to press the key close to the chosen section. If you want to activate simultaneously all the areas, you'll just have to push the ALL key.

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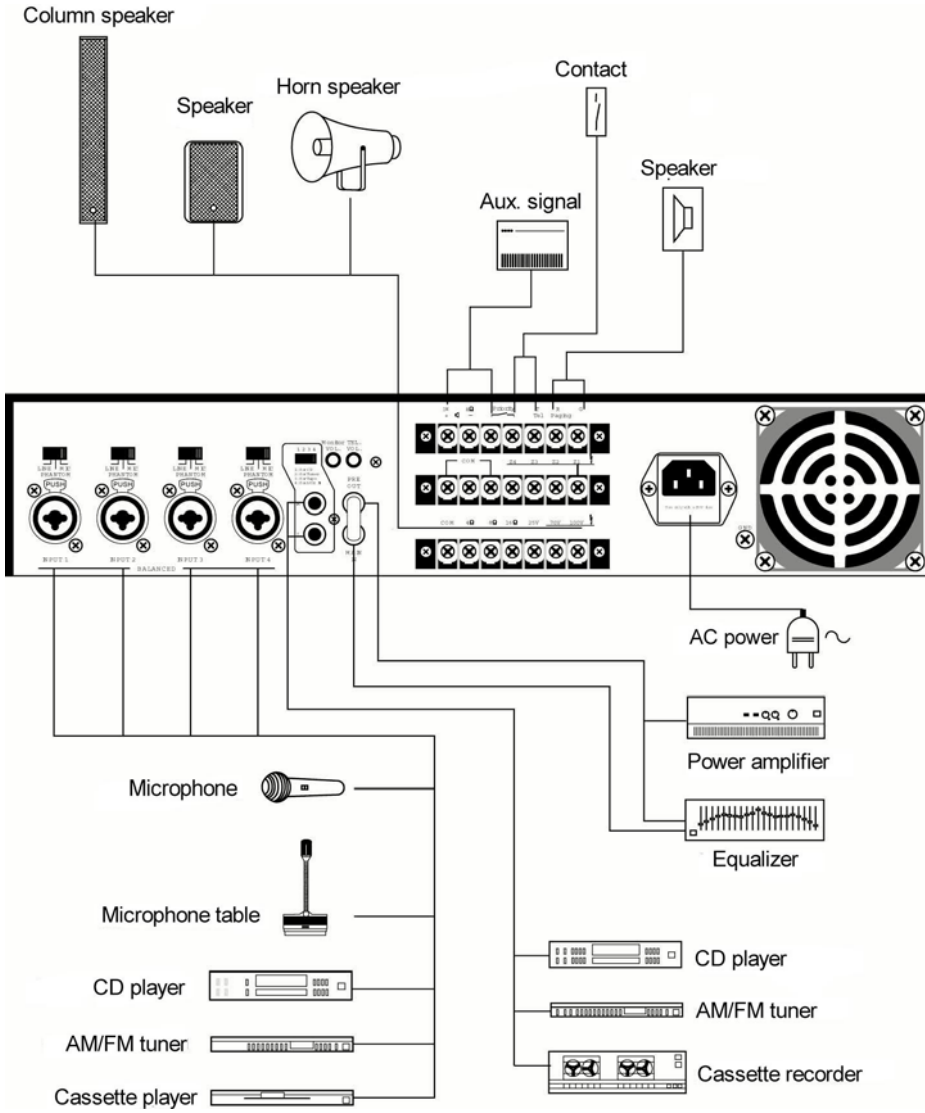
7. Technical specifications

Model	**AMP120Z4**	**AMP180Z4**	**AMP240Z4**
RMS / MAX (W) output power	120 W / 150 W	180 W / 240 W	240 W / 300 W
Constant impedance outputs	4Ω, 8 Ω, 16Ω		
Constant voltage outputs	25V, 70V, 100V		
Inputs connectors	4 COMBO XLR / 6.3 mm jack input MAIN IN RCA input AUX IN RCA input		
Outputs connectors	4Ω, 8Ω, 16Ω on terminal board 25V, 70V, 100V on terminal board PRE OUT RCA		
Frequency response	30-20000 Hz (± 3dB)		
Harmonic distortion	≤ 0,5% (1KHz)		
Signal to noise ratio	Input 1-4 ≥60dB; Aux in ≥70dB; Main in ≥80dB		
Equalization	BASS ± 10dB-100 Hz / TREBLE ±10dB-10KHz		
Controls	7 independent volume controls for: Input 1-2-3-4, Aux in, Monitor,Tel.Paging; 1 Master output control; Zone 1-2-3-4-All level controls		
AC power	115/230 V AC (± 5%) - 60/50 Hz		
Rack unities	2U standard 19”		
Dimensions (W x H x D)	435 mm x 100 mm x 335 mm – 17.1 x 4 x 13.2 in.		
Weight	9.3 kg. - 20.4 lbs	10.3 kg. – 22.6 lbs	12 kg. – 26.5 lbs

8. Typical hookup diagram



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The product is in compliance with Directive 89/336/EEC (Electromagnetic Compatibility) and following modifications 92/31/EEC and 93/68/EEC, as the following standards:
EN 50082-1:1997, EN 55013:1990, EN 55020:1994

it is also in compliance with Directive 73/23/EEC (Low Voltage) and following modifications 93/68/EEC, as the following standard:
EN 60065:1998

Proel SpA pursue a policy of continuous research and development. Proel SpA reserve the right to modify product circuitry and appearance at any moment, without prior notice.

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